ENVIRONMENTAL ASSESSMENT

and

FINDING OF NO SIGNIFICANT IMPACT

for

MIDDLE RIO GRANDE BOSQUE JETTY JACK REMOVAL EVALUATION STUDY

July 2002

Prepared by

US Army Corps of Engineers

Albuquerque District

FINDING OF NO SIGNIFICANT IMPACT
(FONSI)

MIDDLE RIO GRANDE BOSQUE JETTY JACK REMOVAL EVALUATION STUDY

This proposed jetty jack removal study is a preliminary evaluation of various methods (manual, heavy equipment, etc.) for jetty jack removal with regard to position, surroundings, and degree of sedimentary entrainment while attempting to preserve the existing native vegetation to the greatest extent possible. This evaluation study is needed, as methods for jetty jack removal remain unevaluated in terms of efficiency, cost effectiveness, safety, and disposal.

In addition to the knowledge and experience gained in jetty jack removal, this study would provide a significant contribution to the Middle Rio Grande Conservancy District's (MRGCD) and the Albuquerque Open Space Division's (OSD) ongoing bosque restoration/revitalization efforts. The MRGCD and the Albuquerque OSD are the non-Federal sponsor and cooperating agency respectively. The implementation of this study would occur in August 2002.

There are two discrete locations for this evaluation study. The purposes for including two areas in this study are to: 1) allow for an adequate number of jetty jacks to be removed such that the widest possible variety of methods can be explored and evaluated, 2) incorporate a variety specific conditions that future removal efforts would encounter, and 3) become proficient in the aspects of jetty jack removal (*i.e*. methods, efficiency, safety, disposal, etc.).

Site number one, located immediately north of the Central Ave. Bridge on the east side of the Rio Grande (Fig.1), contains approximately 120 jetty jacks that would be removed (Fig. 4). These jetty jacks are no longer required for flood control purposes and the US Bureau of Reclamation, Albuquerque Area Office, has granted permission to remove the jetty jacks in this area (Appendix A). The Albuquerque OSD, through many hours of staff and volunteer work, has cleared the site of non-native exotic vegetation. As a result, jetty jack removal would be simplified. The remaining native vegetation would be preserved and protected to the greatest extent possible as methods in the preservation and protection of native plant species during jetty jack removal is one of the primary goals of the proposed study. In addition, a variety of native vegetation would be planted to improve the ecological and aesthetic value of the area in lieu of the impacts generated from the removal activities.

Site number two, located immediately south of the Avenida César Chávez Blvd. Bridge on the east side of the Rio Grande (Fig. 2), contains approximately 300 jetty jacks that would be removed (Fig. 5) and the US Bureau of Reclamation, Albuquerque Area Office, has also granted permission to remove the jetty jacks in this area (Appendix A). The Albuquerque OSD has also cleared this site of exotic species, and burned vegetation, and would provide an

additional opportunity to evaluate methods for jetty jack removal as outlined previously. This site would be revegetated for the same reasons and in the same manner as site number one.

The National Hispanic Cultural Center of New Mexico (NHCCNM), in cooperation with the MRGCD and the Albuquerque OSD, is anticipating to utilize site number two in the future as an adjunct to their facility's attractions and as an "out-door classroom" for visiting schoolchildren. In addition, the Bosque Ecological Monitoring Program (BEMP), under the direction of Dr. Clifford S. Crawford, Professor Emeritus, Department of Biology, University of New Mexico, has recently begun monitoring the site as part of a comprehensive educational program. BEMP provides local students of all ages the opportunity to participate in a genuine scientific endeavor that fosters practical educational experiences in ecology and biology. BEMP is also an important part of the long-term efforts in monitoring and understanding the ecological complexities of the Rio Grande bosque.

Ultimately, this evaluation study would: 1) provide crucial knowledge and experience in the methods of jetty jack removal required for future restoration projects, 2) establish a framework of cooperative Federal, State, and Municipal agencies that would foster a beneficial and successful relationship regarding future restoration efforts, 3) enhance the educational experience for local youth and youth-groups; and 4) greatly assist both sponsor and cooperating agencies in continuing their site specific restoration projects. The impacts, detailed within this Environmental Assessment, upon the physical and biological resources resulting from this study would be negligible and no historic properties would be affected; therefore, the proposed study is recommended.

Based on the findings of this Environmental Assessment, the proposed study would not have any significant adverse impacts on the quality or integrity of the human or natural environments. Therefore, an Environmental Impact Statement will not be prepared for this study.

_____ _____

Date

Dana R. Hurst
Lieutenant Colonel, EN
District Engineer

TABLE OF CONTENTS

THIS SPACE INTENTIONALLY BLANK

APPENDICES

LIST OF FIGURES

LIST OF TABLES

THIS SPACE INTENTIONALLY BLANK

1.0 INTRODUCTION

1.1 BACKGROUND

Beginning in 1943 the US Army Corps of Engineers (Corps) and the Bureau of Reclamation (BOR) began a cooperative study that, among other relevant issues, considered the lack of adequate flood control within the Middle Rio Grande Valley. The results of this study were reported in the *Rio Grande Comprehensive Plan* and led to the authorization of the Food Control Act of 1948 (Act). The Act tasked the Corps with the construction of flood control reservoirs and rehabilitating, modifying, and extending the levee system constructed by the Middle Rio Grande Conservancy District (MRGCD) between 1930 and 1936. In addition, the BOR was responsible for clearing a floodway and installing jetty fields (*i.e*. Kelner Jetty Jacks) to establish and confine the river to a stable channel.

Jetty jacks perform this function by obstructively reducing the water flow velocities and thus causing the suspended sediments to settle-out of the water column. The cumulative depositional process eventually forms a well-defined channel by raising the relative elevation of the floodway. Consequently, the channel has an increased capacity that also resists its natural tendency to meander. Over time, as the depositional process continues, the established vegetation ultimately supplants the role of the jetty fields and provides the necessary bank and floodway stabilization. Moreover, this process generally illustrates a fundamental driving force in the structure and organization of the Middle Rio Grande bosque we observe today.

In many areas the jetty fields have become a non-functional eyesore that often complicate various efforts toward restoration or fuels reduction (a preemptive measure in the reduction of fire threat and/or severity by the removal of dead-and-downed vegetation). Although not a permanent structure, the jetty jacks are often entrained within depositional sediments and/or vegetation and thus may defy easy removal.

1.2 PURPOSE AND NEED

The flood control measures described above have functioned well over time but have also adversely impacted the bosque. In short, the riparian ecosystem has evolved to depend on periodic inundation and flow regime variations for its overall health and sustainability and the two conditions (historic remnants of flood control and riparian health/sustainability) are largely conflicting. Therefore, to undertake future widespread restoration efforts, the ability to remove jetty jacks safely and efficiently while minimizing adverse environmental impacts is essential.

This proposed jetty jack removal study is a preliminary evaluation of various methods (manual, heavy equipment, etc.) for jetty jack removal with regard to position, surroundings, and degree of entrainment while attempting to preserve the existing native vegetation to the greatest extent possible. This evaluation

study is needed, as methods for jetty jack removal are largely untested considering the wide variety of less obvious circumstances potentially surrounding a single or set of jetty jacks. The objective is therefore to determine the most efficient, cost effective, and safest method for removing jetty jacks given any set of the unique or particular conditions outlined above.

Authorization for the proposed study is under of Section 1135(b) of the Water Resources Development Act (WRDA) of 1986 (P.L. 99-662), as amended, and is an essential experimental component of an ongoing feasibility report for the larger *Ecosystem Revitalization at Route 66* project. The knowledge gained by this evaluation study will be required in the implementation of the larger projects objectives. The 1135 program provides for the improvement of degraded ecosystem structure, function, and dynamic processes to a less degraded, more natural condition. While flood protection will remain unchanged, both the proposed study and larger project represent a significant step forward in large-scale bosque restoration. The MRGCD is the non-Federal Sponsor for this proposed evaluation study. The City of Albuquerque Open Space Division (OSD) and the National Hispanic Cultural Center of New Mexico (NHCCNM) are cooperating agencies.

In addition to the knowledge and experience gained in jetty jack removal, this study would provide a significant contribution to the sponsor's and cooperating agency's ongoing bosque restoration/revitalization efforts. The implementation of this study would occur in August 2002.

1.3 STUDY LOCATIONS

There are two discrete locations for this evaluation study. The purposes for including two areas are to: 1) allow for an adequate number of jetty jacks to be removed such that the widest possible variety of methods can be explored and evaluated, 2) incorporate a variety specific conditions that future removal efforts would encounter (conservation of high-value vegetation, minimizing adverse environmental impacts, degree of jetty jack entrainment, etc.), and 3) become proficient in the aspects of jetty jack removal (*i.e*. methods, efficiency, safety, disposal, etc.).

1.3.1 SITE NUMBER ONE

The first site is located in northwest Albuquerque, New Mexico and extends from the Central Ave. Bridge north approximately 125 meters (410 feet) along the levee on the east side of the Rio Grande (Fig.1). The approximate UTM coordinates for the northeast bridge abutment is N3884239, E346935 (NAD 27-zone 13).

1.3.2 SITE NUMBER TWO

The second site is located in southwest Albuquerque, New Mexico and extends from the Avenida César Chávez Blvd. Bridge south approximately 305 meters (1,000 feet) along the levee on the east side of the Rio Grande (Fig. 2). The approximate UTM coordinates for the southeast bridge abutment is N3881825, E348924 (NAD 27-zone 13).

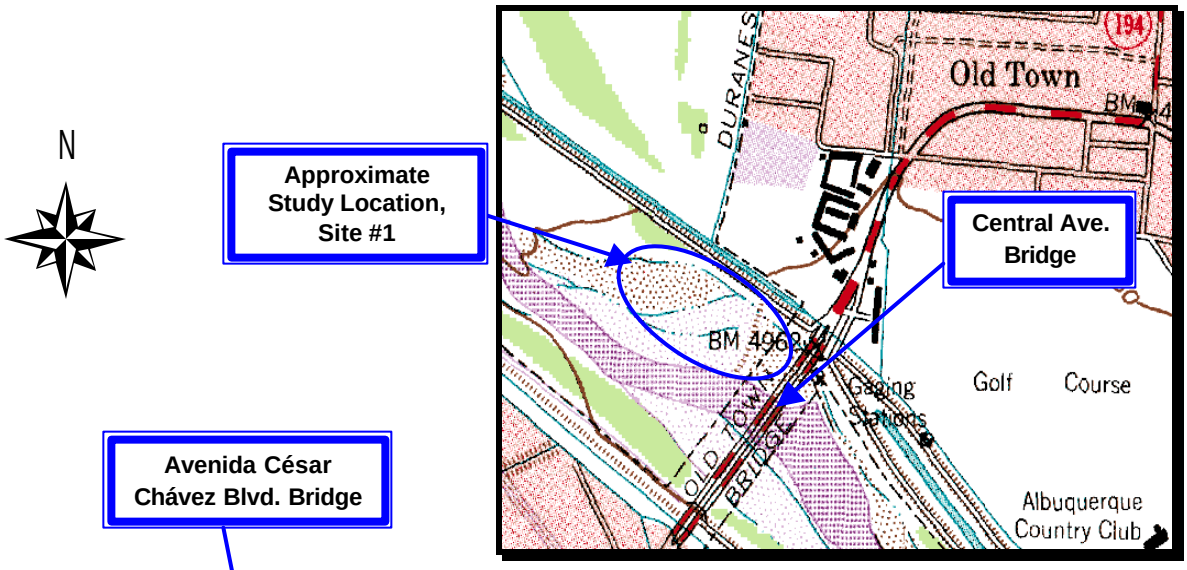
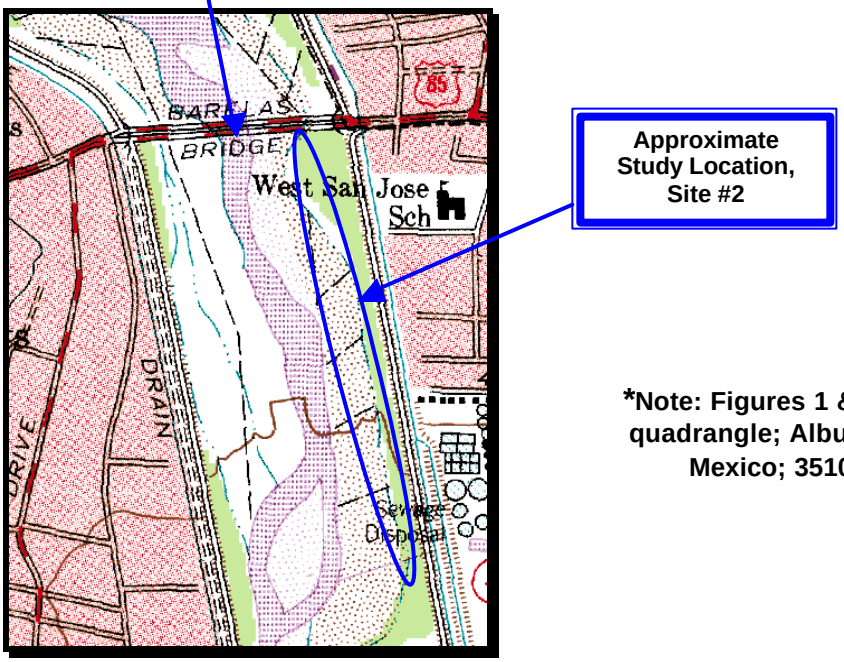


FIGURE 1. Site number one



***Note: Figures 1 & 2 USGS 7½ minute quadrangle; Albuquerque West, New Mexico; 35106-A6, Zone 13.**

FIGURE 2. Site number two

1.4 REGULATORY COMPLIANCE

This Environmental Assessment (EA) was prepared by the U.S. Army Corps of Engineers, Albuquerque District in compliance with all applicable Federal statutes, regulations, and Executive Orders, including the following:

American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996)
Archaeological Resources Protection Act of 1979 (16 U.S.C. 470)
Clean Air Act of 1972, as amended (42 U.S.C. 7401 *et seq.*)
Clean Water Act of 1972, as amended (33 U.S.C. 1251 *et seq.*)
Endangered Species Act of 1973, (ESA) as amended (16 U.S.C. 1531 *et seq.*)
Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, 1994.

Fish and Wildlife Coordination Act of 1958, as amended (16 U.S.C. 661 *et seq.*)
Floodplain Management (Executive Order 11988)
National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321 *et seq.*)
Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500 *et seq.*)
National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 *et seq.*)
Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001 *et seq.*)
Protection and Enhancement of the Cultural Environment (Executive Order 11593)
Protection of Wetlands (Executive Order 11990)
Procedures for Implementing NEPA (33 CFR 230; ER 200-2-2)
National Pollutant Discharge Elimination System, as amended (33 U.S.C. 1251 *et seq.*)
Noxious Weed Act of 1974 (Public Law 93-629; 7 U.S.C. 2801)
Executive Order 13112, Invasive Species

This EA also reflects compliance with all applicable State of New Mexico and local regulations, statutes, policies, and standards for conserving the environment and environmental resources such as water and air quality, endangered plants and animals, quality of the human environment, and cultural resources.

2.0 ALTERNATIVES AND PROPOSED ACTION

2.1 ALTERNATIVE SITES

An additional area was also considered for inclusion in this evaluation study located approximately 0.8 kilometers (0.5 miles) south of the Central Bridge on the east side of the Rio Grande. However, this site was summarily dismissed from consideration, as the site would require extensive clearing in order gain access to the jetty jacks. Moreover, there exists a significant quantity of native vegetation with genuine ecological and aesthetic value. Therefore, to include this site, clearing would unavoidably require a highly selective approach and thus drastically delay the purposes of this evaluation study. Clearing non-native vegetation will certainly be included in the larger *Ecosystem Revitalization at Route 66* project; however, this would generally be accomplished prior to any jetty jack removal activities.

2.2 NO-ACTION ALTERNATIVE

The No-Action Alternative would provide for no Federal funding in the evaluation of jetty jack removal methods and a valuable opportunity for gaining further experience would be lost. As a result, any such experience (for planners, cost-estimators, construction personnel, etc.) would then become part of the larger *Ecosystem Revitalization at Route 66* project and potentially trigger delays in its final implementation and efficiency by which jetty jacks would be removed. Also, the No-Action Alternative may result in a failure to proactively identify any relevant safety issues regarding jetty jack removal.

2.3 PROPOSED ACTION: JETTY JACK REMOVAL

Again, the objective of the proposed study is a preliminary evaluation of various methods of jetty jack removal while attempting to preserve the existing native vegetation to the greatest extent possible. The proposed study would take place in the Middle Rio Grande bosque at two previously defined sites (Sections 1.3.1 & 1.3.2). Further, this study would greatly support future restoration efforts by identifying the most efficient, cost effective, and safest method for removing jetty jacks regarding a particular or unique set of conditions that surround, and potentially complicate, the removal of a single or group of jetty jacks. A typical jetty jack alignment is given in Figure 3.

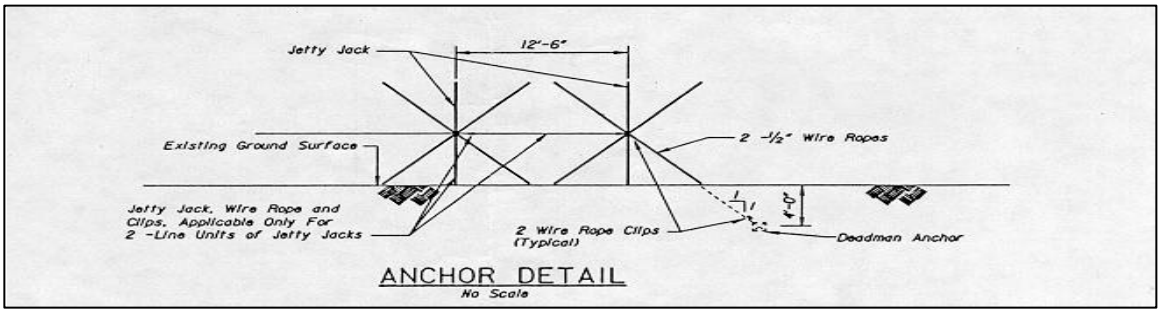


FIGURE 3. Detail of typical jetty jack and deadman anchoring

2.3.1 SITE NUMBER ONE

Site number one, located immediately north of the Central Ave. Bridge on the east side of the Rio Grande (Fig.1), contains approximately 120 jetty jacks that would be removed (Fig. 4). These jetty jacks are no longer required for flood control purposes and the US Bureau of Reclamation, Albuquerque Area Office, has granted permission to remove the jetty jacks in this area (Appendix A). The Albuquerque OSD, through many hours of staff and volunteer work, has cleared the site of non-native exotic species such as saltcedar (*Tamarix chinensis*), Siberian elm (*Ulmus pumila*), Russian olive (*Eleagnus angustifolia*), and tree of heaven (*Ailanthus altissima*). As a result, jetty jack removal would be simplified.

Figure 4. Jetty jacks at Site 1 (north of Central Ave. Bridge)

The remaining native vegetation would be preserved and protected to the greatest extent possible as methods in the preservation and protection of native plant species during jetty jack removal is one of the primary goals of the proposed study. In addition, a variety of native vegetation would be planted to

improve the ecological and aesthetic value of the area in lieu of the impacts generated from the removal activities.

2.3.2 SITE NUMBER TWO

Site number two, located immediately south of the Avenida César Chávez Blvd. Bridge on the east side of the Rio Grande (Fig. 2), contains approximately 300 jetty jacks that would be removed (Fig. 5) and the US Bureau of Reclamation, Albuquerque Area Office, has also granted permission to remove the jetty jacks in this area (Appendix A). The Albuquerque OSD has also cleared this site of

Figure 5. Jetty jacks at Site 2 (south of Avenida César Chávez Blvd. Bridge)

exotic species, and burned vegetation, and would thus provide an additional opportunity to evaluate methods for jetty jack removal as outlined previously. This site would be revegetated for the same reasons and in the same manner as site number one.

The NHCCNM, in cooperation with the Albuquerque OSD, is to utilize this site in the future as an adjunct to their facility's attractions and as an "out-door classroom" for visiting schoolchildren. In addition, the Bosque Ecological Monitoring Program (BEMP), under the direction of Dr. Clifford S. Crawford, Professor Emeritus, Department of Biology, University of New Mexico, has recently begun monitoring the site as part of a comprehensive educational program. BEMP provides local students of all ages the opportunity to participate in a genuine scientific endeavor that fosters practical educational experiences in ecology and biology. BEMP is also an important part of the long-term efforts in monitoring and understanding the ecological complexities of the Rio Grande bosque.

Ultimately, this evaluation study would: 1) provide crucial knowledge and experience in the methods of jetty jack removal required for future restoration projects, 2) establish a framework of cooperative Federal, State, and Municipal agencies that would foster a beneficial and successful relationship regarding future restoration efforts, 3) enhance the educational experience for local youth and youth-groups; and 4) greatly assist both sponsor and cooperating agencies in continuing their site specific restoration projects.

2.4 MECHANISM FOR REVEGETATION ACTIVITIES

A total of 750 native plants would be apportioned and planted at the two sites (Table 1). These plant species are currently available, in various containerized

Table 1. Examples of native plant species available for revegetation.

COMMON NAME	SCIENTIFIC NAME
New Mexico olive	*Forestiera pubescens*
Wolfberry	*Lycium andersonii*
False indigo bush	*Amorpha fruiticosa*
Common gooseberry	*Ribes inerme*
Rio Grande cottonwood	*Populus deltoids* ssp. *wislizenii*
Desert willow	*Chilopsis linearis*
Coyote Willow	*Salix exigua*

forms, from the United States Department of Agriculture, Natural Resource Conservation Service, Plant Materials Center and are part of the annual allocation available to the Corps, Albuquerque District. These plants would be supplied to the cooperating agencies (Albuquerque OSD and NHCCNM) for site revegetation purposes and be planted, nurtured, and monitored by staff and/or volunteer personnel.

3.0 EXISTING ENVIRONMENT AND FORESEEABLE EFFECTS OF THE PROPOSED ACTION

3.1 PHYSICAL RESOURCES

3.1.1 PHYSIOGRAPHY, GEOLOGY, AND SOILS

The Middle Rio Grande Bosque Jetty Jack Removal Evaluation Study is located in the Rio Grande subsection of the Basin and Range Physiographic Province (Williams 1986). More specifically, the site is nestled within the Rio Grande Rift Valley. Formed by the extension and fracture of the Earth's crust, this physiographic feature is generally bounded by fault-block uplifted mountains. The crust extension/mountain-building processes forms a corresponding depression in the overall topography in which the Rio Grande flows.

Soil associations in the study area are classified as Torrifluvents-Calciorthids-Torriorthents (New Mexico State University-Agriculture Experiment Station, 1978). This association includes the level to sloping floodplain of the Rio Grande in Doña Ana, Sierra, Valencia, Bernalillo, Socorro, and Sandoval counties. It also includes the gently sloping to moderately steep terraces and alluvial fans that occur adjacent to, and just above, the greater Rio Grande floodplain. Typically, within the greater floodplain, these soils are used for irrigated croplands, irrigated pasture, urban and community developments, wildlife habitat, and native grazing. Although a wide variety of crops are grown in the valley, hey

and alfalfa are generally the most widespread. Other minor crops include fruits, vegetables, oats, wheat, and sorghum.

These soil associations, which are deep and highly stratified, are developing in alluvium of mixed origin. The surface layers of Torrifluvents can range from sand to clay but most are of medium to fine textures. The subsurface layers are similar but may also include moderately course elements. Although most of these soils are well drained, some areas are subject to high water tables and inadequate permeability. As a result, small areas become saline or saline-sodic soils. Calciorthids occur on the gently to strongly sloping alluvial fans and terraces. These soils typically have light-colored and strongly calcareous gravelly, sandy loam or very gravelly, sandy loam surface layers. The subsurface layers are a pinkish-white and contain moderately course materials with a high concentration of lime. The degree of lime cementation is highly variable and usually decreases with depth. Torriorthents occur on the gently to strongly sloping uplands of the Rio Grande floodplain. These soils lack an extensive lime component found in Calciorthid soils. Textures of Torriorthents are generally gravelly sandy loam surface layers underlain by moderately course subsurface layers. Gravel content of Torriorthents can be up to 50 percent or more.

Impacts to soils would be negligible. Generally, these impacts would stem from simple transit of people and equipment in the removal zone. In a few cases (?60 jetty jacks), some minor excavation may be required to remove a particular jetty jack. Voids resulting from such excavation would be immediately backfilled and the area restored to the initial conditions. For the remainder of the jetty jacks, little or no excavation would be required; the jetty jacks would simply be removed.

3.1.2 CLIMATE

The climate is typical of the Middle Rio Grande Valley and can be generally characterized by hot summers and cold winters. From 1951-1980, the average annual high temperature was 100.8°F and the average low temperature was 3.6°F (Williams 1986). Average annual precipitation is approximately 8.0 inches/year and nearly half that amount comes in the form of late summer and early fall thunderstorms. These storms can be quite intense and highly localized but are typically of short duration. Humidity throughout the Middle Rio Grande Valley is generally low. Snowfall is common averaging approximately nine inches/year. The average frost-free season is 150 days.

3.1.3 WATER RESOURCES & QUALITY

Section 402 of the Clean Water Act, (CWA; 33 U.S.C. 1251 *et seq*.) as amended, specifies that storm-water discharges associated with construction activities shall be conducted under National Pollutant Discharge Elimination System (NPDES) guidance and is administered by the US Environmental Protection Agency (EPA). Construction activities associated with storm-water discharges regulated by NPDES include activities such as clearing, grading, and excavation, which result in a disturbance to five or more acres of land. These types of activities subject

the underlying soils to erosion by storm-water. The aerial extent of disturbance at Sites 1 & 2 would be approximately 1.0 and 3.0 acres respectively. Therefore, a Storm Water Pollution Prevention Plan (SWPPP) is not required and would not be prepared for this study.

Section 404 of the Clean Water Act, (CWA; 33 U.S.C. 1251 *et seq*.) as amended, provides for the protection of waters of the United States through regulation of the discharge of dredged or fill material into waters of the United States. The Corps' Regulatory Program (33 CFR Parts 320-330) requires that a Section 404 evaluation be conducted for all proposed construction that may affect such waters. The proposed evaluation study activities is separated from the normal high water mark at sites 1 & 2 by approximately 183 meters (600 feet) and 90 meters (300 feet) respectively. Bank-line jetty jacks would not be disturbed. Further, the proposed study does not intend to discharge, or impact, any waters of the Untied States; therefore, based on the above conditions, a 404 permit or review process would not be required for the proposed study. Nonetheless, due to the proximity to the Rio Grande, the Corps' Albuquerque District Regulatory Branch shall be included in the draft review process for comment and concurrence on the above 404 evaluation. All Clean Water Act documentation shall be included in the Final Environmental Assessment.

Section 401 of the CWA, (CWA; 33 U.S.C. 1251 *et seq*.) as amended, requires that an applicant for Section 404 authorization must also obtain a Water Quality Certification for the proposed action prior to initiating any proposed construction. For projects located on public or private land in New Mexico, the New Mexico Environment Department administers these certifications as delegated by the EPA. There would be no foreseeable impacts upon water quality resulting from the implementation of the proposed study; however, the New Mexico Environment Department shall also be included in the draft review process for comment and concurrence on the above 401 evaluation.

3.1.4 WETLANDS AND FLOODPLAINS

Executive Order 11990 (Protection of Wetlands) requires the avoidance, to the greatest extent possible, of both long *and* short-term impacts associated with the destruction, modification, or other disturbance of wetland habitats. Further, Section 5(b) calls for the maintenance of natural systems, including the conservation and long-term productivity of existing flora and fauna, species and habitat diversity and stability, hydrologic utility, fish, wildlife, timber, and food and fiber resources. There would be no impacts to wetlands resulting from the implementation of the proposed study, as none exist at either site.

Executive Order 11988 (Floodplain Management) provides Federal guidance for activities within the floodplains of inland and coastal waters. This order requires Federal agencies to take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains. The proposed study sites are situated within the active floodplain of the Rio Grande between the channel main stem and the east levee. In the Middle Rio

Grande Valley, the regions between the levees are typically reserved for floodway purposes, wildlife habitat, and recreation activities of various types.

Current levels of flood control would not be affected by the removal of the jetty jacks at either site. Again, the US Bureau of Reclamation, the authority responsible for an engineering evaluation of the flood control utility of the jetty jacks in question, has granted permission for the removal of all jetty jacks in both study areas (Appendix A). Further, the ecological and aesthetic value of the floodplain would be improved by the jetty jack removal and the continued non-Federal restoration efforts would be fostered.

3.1.5 AIR QUALITY

The proposed study sites are located in the New Mexico intrastate Region 2 (EPA Region 152) for air quality monitoring. Region 2 is in attainment/maintenance status for carbon monoxide (CO) and is in attainment for all other criterion pollutants (sulfur oxides [SO_X], nitrogen oxides [NO_X], lead [Pb], ozone [O_3], hydrocarbons [C_nH_{n+2}], and particulate matter of greater than or equal to 10 microns [µm] in size [PM_{10}]). These standards are determined by National Ambient Air Quality Standards (NAAQS) established by the EPA (NMEDAQB 1994). As such, levels for the above attainment pollutants do not exceed State of New Mexico or Federal EPA air quality standards.

Region 2, located in central New Mexico, is considered Class II under the Prevention of Significant Deterioration (PSD) program as required by the Clean Air Act of 1972 (42 U.S.C. 7401 *et seq*.), as amended. PSD Class II areas allow for moderate levels of development accompanied by the resulting air quality impacts. In contrast, PSD Class I areas have a pristine air quality and virtually no increases in contaminant levels are allowed (NMEDAQB 1988). As a result, activities near PSD Class I areas may impact their pristine air quality status; therefore, such activities would be subject to any and all limitations set forth by the strict PSD Class I standards. The closest Class I area, relative to the study sites, is located at Bandelier Wilderness approximately 60 miles to the north-northwest; however, by virtue of distance, Bandelier Wilderness would not be affected by study activities.

Air quality in the Albuquerque area is generally good, but may at times suffer from periodic peaks in CO and PM_{10} levels that often correlate with seasonality and commuter traffic. Particulates perturbed during jetty jack removal are a concern given the nature of the proposed activity and equipment used to conduct this study; however, water applied to moisten exposed soils would reduce or eliminate fugitive dust and potential erosion impacts. These best management practices would be implemented at all times during study activities. The proposed study would result in a temporary but negligible impact on air quality; however, revegetation would greatly promote long-term soil stabilization and riparian conservation.

THIS SPACE INTENTIONALLY BLANK

3.1.6 NOISE

Ambient noise levels in the study area are generally low-to-moderate. The major sources of noise emanate from the Central Ave. and Avenida César Chávez Blvd. overpasses with peak levels occurring during the rush-hour periods.

During the various stages of construction, noise levels should increase slightly from the operation of heavy equipment. The increase of noise levels should be moderate, short-term, and limited to daytime work hours. Some work may be accomplished on weekends to reduce the overall duration of impacts but, again, would only occur during daylight hours. These supplementary impacts to ambient noise levels would be short-term and negligible.

3.1.7 AESTHETICS

The aesthetics of both study sites have suffered by the installation of the jetty jacks. In addition to the valuable knowledge and experience gained in the techniques of jetty jack removal, the study, and subsequent revegetation efforts, proposed here would also prove to be a significant improvement over the existing conditions but would not, however, be immediately apparent.

The jetty jack removal would have a short-term adverse impact upon the aesthetics of both sites; nonetheless, the results of the proposed study and revegetation would ultimately provide a setting that promotes an aesthetically appealing environment that is substantively more favorable to wildlife. Native vegetation would be planted in all areas of disturbance and, in time, both sites would rebound and ultimately provide a variety of riparian habitats that are both ecologically and aesthetically sound and engaging.

3.2 BIOLOGICAL RESOURCES

3.2.1 VEGETATION COMMUNITIES

The Hink and Ohmart (1984) vegetation classification system described the jetty jack study area of Site 1 (north of the Central Ave. Bridge) as being comprised of Rio Grande cottonwood and Russian olive. Abbreviated C\RO 1, this assemblage often exhibits vegetation in most canopy layers but is dominated by mature trees of 15-18 m (50-60 ft) in height (Type 1). Site 2 (south of Avenida César Chávez Blvd. Bridge) is similar but also includes, to a limited degree, stands of saltcedar in the understory. Abbreviated C\RO-SC 1, this area is also a mature riparian forest with a recent history of a thicker, more developed understory.

In addition to the cover-types noted above, both sites also include a degree of Siberian elm. As discussed previously, however, most exotics have been cleared from both sites through the efforts of the Albuquerque OSD, MRGCD, and NHCCNM. At site 1, volunteers have successfully planted numerous Rio Grande cottonwoods and native willow species (*Salix* spp.) in an area riverward of the proposed study area.

Impacts to the existing vegetation at both sites would be negligible. The protection of vegetation during jetty jack removal is the overall purpose of this study and ultimately defines the parameters under which the removal activities would occur. Revegetation of native plant species would be coordinated with the MRGCD, Albuquerque OSD, and NHCCNM.

3.2.2 NOXIOUS WEEDS AND INVASIVE SPECIES

The Federal Noxious Weed Act of 1974 (Public Law 93-629; 7 U.S.C. 2801) provides for the control and eradication of noxious weeds and their regulation in interstate and foreign commerce. Executive Order 13112 directs Federal agencies to prevent the introduction of invasive (exotic) species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.

In addition, the State of New Mexico, under administration of the United States department of Agriculture, designates and lists certain weed species as being noxious. "Noxious" in this context means plants not native to New Mexico that have a negative impact in the economy or environment, and are targeted for management or control. Class C listed weeds are common, widespread species that are fairly well established within the state. Management and suppression of Class C weeds is at the discretion of the lead agency. Class B weeds are considered common within certain regions of the state but are not widespread. Control objectives for Class B weeds are to prevent new infestations, and in areas where they are already abundant, to contain the infestations and prevent their further spread. Class A weeds have limited distributions within the state. Preventing new infestations and eliminating existing infestations is the priority for Class A weeds.

As previously discussed, the vast majority of the exotic species have been physically cleared from the study sites. However, there exists, in the surrounding areas, a significant amount of Siberian elm as well as other exotics. It is therefore not practical to invoke an aggressive weed/exotic species control effort, as it could never be comprehensive enough to prevent recolonization. The measures that would be taken to prevent the spread of noxious weeds or exotics into the study area are as follows: 1) all machinery shall be clean and free of propagules (seeds) to the greatest extent possible and 2) the plants for revegetation would be largely root-watered to prevent the unintended watering of noxious or exotic seeds adjacent to the plant.

3.2.3 WILDLIFE

Wildlife species within and in the surrounding areas of the study sites are typical for Middle Rio Grande Valley. Neotropical migrants and resident avian species frequent the area and live within the bosque. These species include: Coopers Hawk (*Accipiter cooperii*), Red-Tailed Hawk (*Buteo jamaicensis*), Great-Horned Owl (*Bubo virginianus*), Turkey Vulture (*Cathartes aura*), Greater Roadrunner (*Geococcyx californianus*), Downy Woodpecker (*Picoides pubescens*), Belted Kingfisher (*Ceryle alcyon*), White-Crowned Sparrow (*Zonotrichia leucophrys*), American Crow (*Corvus brachyrhynchos*), White-Breasted Nuthatch (*Sitta*

carolinensis), Summer Tanager (*Piranga rubra*), Black-Headed Grosbeak (*Pheucticus melanocephalus*), House Finch (*Carpodacus mexicanus*), American Robin (*Turdus migratorius*), Black-Crowned Night Heron (*Nycticorax nycticorax*), Black-Chinned Hummingbird (*Archilochus alexandri*), Rufous Hummingbird (*Selasphorus rufus*), Broad-Tailed Hummingbird (*Selasphorus platycercus*), Pied-Billed Grebe (*Podilymbus podiceps*), Common Merganser (*Mergus merganser*), Canada Goose (*Branta canadensis*), and various waterfowl *(Anus spp, Aythya spp, Oxyura jamaicensis, Aix sponsa*). In addition, various mammals and reptiles such as mice, rabbits, skunks, coyote, beaver, and lizards, also may inhabit or transit the area.

Wildlife would clearly be disturbed or displaced during the jetty jack removal process. However, the short duration of the removal activities (approximately 4-5 days at each site) would, in part, mitigate such impacts. Further, again, revegetation would provide a variety of riparian habitats that is significantly more ecologically valuable and should support a wider variety of wildlife species.

3.2.4 SPECIAL STATUS SPECIES

While all Federal, State, and Municipal agencies have a responsibility for the protection and conservation of Threatened and Endangered species, two agencies have this task as their primary responsibility. The United States Fish and Wildlife Service (USFWS), under authority of the Endangered Species Act of 1973 (16 U.S.C. 1531), as amended, has the responsibility for federally listed species and the New Mexico Department of Game and Fish (NMDGF) has the responsibility for state-listed wildlife. Any proposed action that may have the potential to impact any listed wildlife species must be coordinated through and guided by these agencies.

Each agency maintains a continually updated list of species, which are classified, or are candidates for classification, as protected based on their present status and potential threats to future survival. These types of status rankings represent an expression of threat level to a given species survival as a whole and/or within discrete populations.

Those wildlife species that have the potential for occurring in the proposed study areas are presented in Table 2. In addition, the New Mexico Department of Minerals Natural Resources, Forestry Division has the responsibility for maintaining the list of state endangered plant species; however, there are no endangered plants affected by the proposed study's construction or implementation.

THIS SPACE INTENTIONALLY BLANK

Table 2. Federal and State Special Status Species with potential to occur at or near the proposed study areas.

Common Name	Federal Status (USFWS) [a]	State of New Mexico Status (NMDGF) [b]
Bald Eagle	T	E2
Whooping Crane	XN	E1
Yellow-billed Cuckoo	C	---
Rio Grande Silvery Minnow	E	E1
Southwestern Willow Flycatcher	E	E1

[a] **Endangered Species Act (ESA) status as prepared by the USFWS;**

E = Endangered: any species that is in danger of extinction throughout all or a significant portion of its range.

T = Threatened: any species that is likely to become an Endangered Species within the foreseeable future throughout all or a significant portion of its range.

C = Candidate: taxa for which the USFWS has on file sufficient information on biological vulnerability and threat(s) to support proposals to list as Threatened or Endangered Species.

XN = Experimental Nonessential Population.

[b] **State of New Mexico Status;**

E1 = Endangered Animal Species whose prospects of survival of recruitment within the State are in jeopardy.

E2 = Endangered Animal Species whose prospects of survival of recruitment within the State are likely to become jeopardized in the foreseeable future.

This EA is intended to meet the consultation requirements pursuant to Section 7 of the ESA. A determination of effect to federally listed species is included in the discussion for each species that follows.

The Bald Eagle (*Haliaeetus leucocephalus*), a Federal and State Threatened Species, is typically found near waterways and lakes where adequate food supplies can be found. In New Mexico, the Bald Eagle primarily occurs in late fall and winter months. A shy and observant animal, the Bald Eagle can often be seen perched in large trees or foraging for fish or carrion along rivers and local reservoirs. During numerous site visits in late winter 2002, no Bald Eagles were observed at either study site. Due to the timing of the proposed study activities (August 2002), no effect would occur to the Bald Eagle, or any suitable habitat, by the implementation of the proposed study. Indeed, the Bald Eagle may eventually benefit from the long-term, non-Federal restoration efforts fostered by these study activities.

The Whooping Crane (*Grus americana*) was listed as a federally Endangered species on March 11, 1967 (32 FR 4001; 35 FR 8495) and are typically associated with marshes, potholes, prairies, and agricultural fields. In New Mexico, they typically winter at Bosque del Apache in association with Sandhill Cranes (*Grus canadensis*). They often feed in agricultural fields or wetland units and roost on sand bars in the Rio Grande or in nearby wetlands. Given the localized nature of the proposed study, the extremely low numbers of Whooping Cranes reported in the Rocky Mountain flyway,

and the timing of study activities the experimental nonessential population of the Whooping Crane would suffer no effect by the implementation of the proposed study.

The Yellow-billed Cuckoo (*Coccyzus erythropthalmus*), common in woods, orchards, and streamside willow and alder groves, is a Federal Candidate species. The jetty jack removal activities would likely disturb any birds present; however, during several site visits, ranging from late winter 2002 to the present, no Yellow-billed Cuckoos were observed at either site. Again, due to the localized nature of disturbance and the bird's mobility, the Yellow-billed Cuckoo would suffer no effects by the implementation of the proposed study and may also benefit from the long-term, non-Federal restoration efforts.

The Rio Grande silvery minnow (*Hybognathus amarus*) would not suffer any adverse effects, as study activities would not take place within or near the river channel; however, this study, in conjunction with other restoration and study efforts, represents a continuation of the growing body of knowledge vital for future restoration work. Consequently, the culmination of these efforts will eventually promote a framework necessary for recovery and long-term survival of the species.

The Southwestern Willow Flycatcher (*Empidonax traillii extimus*), a federally and state listed species, typically inhabits dense thickets of Coyote willow or saltcedar near slow moving water sources.

This implementation of this study would have no effect upon the Southwestern Willow Flycatcher (WIFL) nor is there any critical habitat at or adjacent to either study site. Thus, it is not necessary to conduct field surveys (see Figs. 4 & 5). Notwithstanding the gains in restoration methods and experience, the future implications of the study and revegetation efforts would provide an inaugurate degree of habitat reestablishment at the sites and potentially benefit the WIFL's recovery and long-term survival.

In summation, the Corps has determined that the proposed study would have no effect on any listed special status species.

3.3 CULTURAL RESOURCES

The study sites are located on the riverward side of the levee within the ancestral floodway of the Rio Grande. Given this location, no archaeological sites should occur within the study areas, as large portions of the land involved in this undertaking did not exist until after 1956. Prior to this time period, the active channel meandered over much of the study areas and the installation of the jetty jacks caused depositional formation of the "land" we observe today. Access to both study sites is provided by the existing roads located on the crown of the levees.

This study would have no effect on the cultural resources of the Albuquerque area. In the unlikely event that cultural resources are discovered, work would

cease in the vicinity of the discovery and consultation with the State Historic Preservation Office would take place. For a more detailed discussion on cultural resources, see Appendix B.

Coordination and consultation with the New Mexico State Historic Preservation Officer (SHPO) is completed and the final concurrence letter is presented in Appendix B.

3.3.1 INDIAN TRUST ASSETS

Indian Trust Assets (ITA) are legal interests in property held in trust by the United States for Indian tribes or individuals. Examples of trust assets include land, minerals, hunting and fishing rights, and water rights. The United States has an Indian Trust Responsibility to protect and maintain rights reserved by or granted to Indian tribes or individuals by treaties, statutes, executive orders, and rights further interpreted by the courts. This trust responsibility requires that all Federal agencies take all actions reasonably necessary to protect such trust assets. The implementation of the proposed study is not anticipated to impact any Indian Trust Assets.

3.4 LAND USE and SOCIOECONOMIC CONSIDERATIONS

Current land use is degraded wildlife habitat and recreational use. Current conditions and land use would likely remain unchanged until the study and/or non-federal site restoration efforts are initiated. There is no evidence of toxic spills or contaminants.

The local revenue benefits would largely be limited to a demand for goods and services. For example, meals for work crews and lodging, when required, would likely be sought in the surrounding area. In addition, fuel for work vehicles would be purchased, in part, from local suppliers. Contractors would most likely be based locally. The demand for goods and services would last, at various levels, for the entire study period, resulting in a minor benefit for the local economy.

The study area is considerably removed from any local residents. However, several houses are located on the landward side of the western levee. Impacts, such as heavy equipment noise and vehicle traffic along the levee road would be minor. All work would be limited to daytime work hours and impacts should be somewhat attenuated by the distance between the study area and local residents. Further, traffic noise would commingle with that of the equipment used in the study and thus also attenuate its impacts.

3.5 ENVIRONMENTAL JUSTICE

Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority and Low-Income Populations; February 11, 1994) was designed to focus the attention of Federal Agencies on the human health and environmental conditions of minority and low-income communities. It requires Federal agencies to adopt strategies to address environmental justice concerns within the context of agency operations and proposed actions. In an accompanying memorandum,

President Clinton emphasized that existing laws, such as the National Environmental Policy Act (NEPA), should provide an opportunity for federal agencies to assess the environmental hazards and socioeconomic impacts associated with any given agency action upon minority and low-income communities. In April of 1995, the EPA released a guidance document entitled Environmental Justice Strategy: Executive Order 12898. In short, this document defines the approaches by which the EPA will ensure that disproportionately high environmental and/or socioeconomic effects on minority and low-income communities are identified and addressed. Further, it establishes agency wide goals for all Native Americans with regard to Environmental Justice issues and concerns.

No disproportionately high environmental and/or socioeconomic effects on minority or low-income communities would result from the proposed study.

3.6 CUMULATIVE IMPACTS, IRREVERSIBLE & IRRETRIEVABLE COMMITMENTS of RESOURCES

In consideration of past, present, and future actions that are reasonable and foreseeable, the adverse cumulative impacts upon the biological and cultural resources of the proposed study would be negligible. Conversely, the proposed study would aid in substantively restoring a degraded area to one of significant intrinsic and ecological value.

An irreversible and irretrievable impact is a commitment of a resource(s) that is, through a given action, lost forever. There are no foreseeable irreversible and irretrievable commitments of resources associated with this study. Procedures to ensure the security and integrity of any resource would be duly and diligently maintained at all times.

4.0 CONCLUSION

This proposed jetty jack removal study is a preliminary evaluation of various methods (manual, heavy equipment, etc.) for jetty jack removal with regard to position, surroundings, and degree of sedimentary entrainment while attempting to preserve the existing native vegetation to the greatest extent possible. This evaluation study is needed, as methods for jetty jack removal remain unevaluated in terms of efficiency, cost effectiveness, safety, and disposal.

In addition to the knowledge and experience gained in jetty jack removal, this study would provide a significant contribution to the sponsor's and cooperating agency's ongoing bosque restoration/revitalization efforts. The implementation of this study would occur in August 2002.

There are two discrete locations for this evaluation study. The purposes for including two areas in this study are to: 1) allow for an adequate number of jetty jacks to be removed such that the widest possible variety of methods can be explored and evaluated, 2) incorporate a variety specific conditions that future

removal efforts would encounter, and 3) become proficient in the aspects of jetty jack removal (*i.e*. methods, efficiency, safety, disposal, etc.).

Site number one, located immediately north of the Central Ave. Bridge on the east side of the Rio Grande (Fig.1), contains approximately 120 jetty jacks that would be removed (Fig. 4). These jetty jacks are no longer required for flood control purposes and the US Bureau of Reclamation, Albuquerque Area Office, has granted permission to remove the jetty jacks in this area (Appendix A). The Albuquerque OSD, through many hours of staff and volunteer work, has cleared the site of non-native exotic vegetation. As a result, jetty jack removal would be simplified. The remaining native vegetation would be preserved and protected to the greatest extent possible as methods in the preservation and protection of native plant species during jetty jack removal is one of the primary goals of the proposed study. In addition, a variety of native vegetation would be planted to improve the ecological and aesthetic value of the area in lieu of the impacts generated from the removal activities.

Site number two, located immediately south of the Avenida César Chávez Blvd. Bridge on the east side of the Rio Grande (Fig. 2), contains approximately 300 jetty jacks that would be removed (Fig. 5) and the US Bureau of Reclamation, Albuquerque Area Office, has also granted permission to remove the jetty jacks in this area (Appendix A). The Albuquerque OSD has also cleared this site of exotic species, and burned vegetation, and would provide an additional opportunity to evaluate methods for jetty jack removal as outlined previously. This site would be revegetated for the same reasons and in the same manner as site number one.

The NHCCNM, in cooperation with the Albuquerque OSD, is to utilize site number two in the future as an adjunct to their facility's attractions and as an "out-door classroom" for visiting schoolchildren. In addition, the Bosque Ecological Monitoring Program (BEMP), under the direction of Dr. Clifford S. Crawford, Professor Emeritus, Department of Biology, University of New Mexico, has recently begun monitoring the site as part of a comprehensive educational program. BEMP provides local students of all ages the opportunity to participate in a genuine scientific endeavor that fosters practical educational experiences in ecology and biology. BEMP is also an important part of the long-term efforts in monitoring and understanding the ecological complexities of the Rio Grande bosque.

Ultimately, this evaluation study would: 1) provide crucial knowledge and experience in the methods of jetty jack removal required for future restoration projects, 2) establish a framework of cooperative Federal, State, and Municipal agencies that would foster a beneficial and successful relationship regarding future restoration efforts, 3) enhance the educational experience for local youth and youth-groups; and 4) greatly assist both sponsor and cooperating agencies in continuing their site specific restoration projects. The impacts, detailed within this Environmental Assessment, upon the physical and biological resources

resulting from this study would be negligible and no historic properties would be affected; therefore, the proposed study is recommended.

5.0 CONSULTATION, COORDINATION, AND DOCUMENT PREPARATION

This Environmental Assessment was prepared by the US Army Corps of Engineers, Albuquerque District.

The following are other agencies and concerned entities consulted formally or informally in the preparation of this document.

FEDERAL:

Mr. Drew Baird
US Bureau of Reclamation

Mr. Mark Nemath
US Bureau of Reclamation

Deborah M. Finch, Ph.D.
USDA Forest Service,
Rocky Mountain Research Station

Ms. Joy Nicholopoulos, Ph.D.
US Fish and Wildlife Service

Mr. Jude Smith
US Fish and Wildlife Service

Mr. Bill Ostheimer
US Fish and Wildlife Service

Mr. Paul Tashjian
US Fish and Wildlife Service

Ms. Anne Kathryn Ziehe
US Senator Pete Domenici's Office

Ms. Jean Manger
US Army Corps of Engineers, Albuquerque District
Regulatory Branch

STATE OF NEW MEXICO:

Mr. Sterling Grogan
Middle Rio Grande Conservancy District

Ms. Yasmeen Najmi
Middle Rio Grande Conservancy District

Mr. Nic Medley
Conservation Services Division
New Mexico Department of Game and Fish

Mr. Robert Sivinski
New Mexico Energy, Minerals, and Natural Resources-Forestry Division

Mr. Rolf Schmidt-Petersen
New Mexico Interstate Stream Commission

Mr. Gedi Cibas
Environmental Impact Review Coordinator
New Mexico Environment Dept

Mr. Elmo Baca
State Historic Preservation Officer
New Mexico State Historic Preservation Bureau

CITY:

Mr. Tom Pitts
Water Consultants
City of Albuquerque

Mr. John Stomp
City of Albuquerque

Ms. Ondera Linderoth-Hummel
City of Albuquerque, Open Space Division

OTHERS:

Dr. Clifford S. Crawford
University of New Mexico

Mr. Maceo Carrillo Martinet
National Hispanic Cultural Center of New Mexico

Ms. Susan George
Alliance for the Rio Grande
Defenders of Wildlife

Mr. Steve Harris
Rio Grande Restoration/Alliance for Rio Grande

Mr. David Henderson
National Audubon Society

Ms. Deb Hibbard
Rio Grande Restoration

Kara Gillon
Alliance for the Rio Grande
Defenders of Wildlife

List of persons involved in Environmental Assessment preparation:

Mark W. Horner
Biologist, US Army Corps of Engineers, Albuquerque District

John D. Schelberg, Ph.D.
Archaeologist, US Army Corps of Engineers, Albuquerque District

For further information or document copies contact:

Mr. Mark W. Horner, Biologist
US Army Corps of Engineers, Albuquerque District
Environmental Resources Branch
CESPA-EC-R
4101 Jefferson Plaza NE
Albuquerque, New Mexico 87109-3435
(505) 342-3787
E-mail: mark.w.horner@spa02.usace.army.mil

6.0 REFERENCES

Berry, K. Lynn and Karen Lewis. 1997. **Historical Documentation of Middle Rio Grande Flood Protection Projects, Corrales to San Marcial.** Office of Contract Archeology, University of New Mexico, Albuquerque.

Boyle, S.C. 1994. ***Comerciantes, Arrieros, y Peones*: The Hispanos and the Santa Fe Trade**. Special History Study, Professional Papers No. 54, Southwest Cultural Resources Center, Southwest Regional Office, Division of History, National Park Service.

Cordell, Linda S. 1979. **A Cultural Resources Overview, Middle Rio Grande Valley, New Mexico**. US Bureau of Land Management and US Forest Service, Albuquerque.

Cordell, Linda S. 1997. **Archaeology of the Southwest**. Second Ed. Academic Press, Inc. San Diego.

Ellis, Lisa M., Manual C. Molles, and Clifford S. Crawford. 1996. **Seasonal Flooding and Riparian Forest Restoration in the Middle Rio Grande Valley.** Final report submitted to US Fish and Wildlife Service Ecological Services, New Mexico. Department of Biology, University of New Mexico, Albuquerque.

Frisbie, Theodore R. 1967. **The Excavation and Interpretation of the Artificial Leg Basketmaker III-Pueblo I Sites Near Corrales, New Mexico.** Unpublished M.A. thesis. Department of Anthropology, University of New Mexico, Albuquerque.

Huckell, Bruce B. 1996. The Archaic Prehistory of the North American Southwest. In **Journal of World Prehistory**. Vol. 10, No. 3, pp. 305-373. Plenum Press. New York.

Irwin-Williams, Cynthia. 1973. **The Oshara Tradition: Origins of Anasazi Culture**. In Contributions in Anthropology No. 5(1). Eastern New Mexico University. Portales.

Judge, W. James 1973. **PaleoIndian Occupation of the Central Rio Grande Valley in New Mexico**. University of New Mexico Press. Albuquerque.

Judge, W. James and Jerry Dawson 1972. **PaleoIndian Settlement Technology in New Mexico**. In Science. Vol. 176:1210-1216.

Julyan, Robert H. 1994. **The Place Names of New Mexico**. University of New Mexico Press. Albuquerque.

Kelley, Vincent C. 1974. **Albuquerque Its Mountains, Valley, Water, and Volcanoes.** New Mexico Bureau of Mines and Mineral Resources. University of New Mexico Press, Albuquerque, NM.

Marshall, Michael P. and Henry J. Walt. 1984. **Rio Abajo: Prehistory and History of a Rio Grande Province**. New Mexico Historic Preservation Program, Historic Preservation Division, Santa Fe.

Middle Rio Grande Biological Interagency Team. 1993. **Middle Rio Grande Ecosystem: Bosque Biological Management Plan.** US Fish and Wildlife Service, Albuquerque, New Mexico.

New Mexico Environment Department, Air Quality Bureau (NMEDAQB). 1986. **New Mexico Air Quality 1983 & 1984.** New Mexico Environment Department. NMED/AQB-86/1. Santa Fe.

New Mexico Environment Department, Air Quality Bureau (NMEDAQB). 1997. **New Mexico Air Quality 1994-1996.** New Mexico Environment Department. NMED/AQB-97/1. Santa Fe.

New Mexico State University, Agricultural Experiment Station and Soil Conservation Service. 1978. **Soils of New Mexico-Research Report 285**. New Mexico State University. Las Cruces.

Pearce, T.M. 1965. **New Mexico Place Names, A Geographical Dictionary.** University of New Mexico Press, Albuquerque.

Poore, Anne V. and John Montgomery, editors. 1987. **Secrets of a City: Albuquerque Area Archaeology.** Papers of the Archaeological Society of New Mexico: 13. Ancient City Press, Inc. Santa Fe, NM.

Sargeant, Kathryn and Mary Davis. 1986. **Shining River Precious Land.** The Albuquerque Museum, Albuquerque, NM.

Schroeder, A.H. 1979. Pueblos Abandoned in Historic Times. In **Handbook of North American Indians, Southwest**. Alfonso Ortiz, ed. Vol. 9. Smithsonian Institution. Washington, D.C.

Scurlock, Dan. 1998. **From the Rio to the Sierra: An Environmental History of the Middle Rio Grande Basin.** United States Department of Agriculture Forest Service, Rocky Mountain Research Station. General Technical Report RMRS-GTR-5

Simmons, Marc. 1988. **New Mexico: An Interpretive History**. University of New Mexico Press. Albuquerque.

Simmons, Alan H., Ann Lucy Wiener Stodder, Douglas D. Dykeman, and Patricia A. Hicks. 1989. **Human Adaptations and Cultural Change in the Greater Southwest: An Overview of Archeological Resources in the Basin and Range Province.** Arkansas Archeological Survey Research Series No. 32. Prepared by the Desert Research Institute, Quaternary Sciences Center, University of Nevada, Reno, and the Bureau of Anthropological Research University of Colorado, Boulder, with the Arkansas Archeological Survey, Fayetteville. Submitted to the U.S. Army Corps of Engineers, Southwestern Division. Ft. Worth.

Stuart, David E. and Rory P. Gauthier. 1984. **Prehistoric New Mexico: Background for Survey**. State of New Mexico, Office of Cultural Affairs, Historic Preservation Division and the New Mexico Archeological Council. Santa Fe.

Stuever, Mary C. 1997. **Fire Induced Mortality of Rio Grande Cottonwood.** Master's Thesis, Department of Biology, University of New Mexico, Albuquerque.

THIS SPACE INTENTIONALLY BLANK

Tainter, Joseph A. and Frances Levine. 1987. **Cultural Resources Overview: Central New Mexico**. Prepared for USDA Forest Service, Southwestern Region, Albuquerque and Bureau of Land Management, New Mexico State Office, Santa Fe.

Twitchell, Ralph Emerson. 1917. **The Leading Facts of New Mexico History**. Vol. IV. The Torch Press. Cedar Rapids, Iowa.

US Environmental Protection Agency. 1998. Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analysis. http://es.epa.goc/oeca/ofa/ejepa.html.

Van Citters, Karen. 2000. **Historic Engineering Overview of the San Marcial Railroad Bridge.** Office of Contract Archeology, University of New Mexico.

Williams, Jerry L. 1986. **New Mexico in Maps**. Second Ed. University of New Mexico Press. Albuquerque.

Wiseman, Regge E. 1995. **The Belen Bridge Site and the Late Elmendorf Phase in Central New Mexico**. Archaeology Notes 137. Museum of New Mexico, Office of Archaeological Studies, Santa Fe.

Wozniak, F.E. 1987. **Irrigation in the Rio Grande Valley, New Mexico: A Study of the Development of Irrigation Systems Before 1945**. New Mexico Historic Preservation Division. Santa Fe.

THIS SPACE INTENTIONALLY BLANK

APPENDIX A
US BUREAU OF RECLAMATION COORDINATION

MAY 01 '02 10:29AM CITY ALB OPEN SPACE P.2

United States Department of the Interior

BUREAU OF RECLAMATION
Albuquerque Area Office
505 Marquette N.W. Suite 1313
Albuquerque, New Mexico 87102-2162

IN REPLY REFER TO:

ALB-244
PRJ-1.10

NOV 29 2000

Ms. Ondrea Linderoth-Hummel
Open Space Division
PO Box 1293
Albuquerque NM 87103

Subject: Jetty Jack Removal

Dear Ms. Linderoth-Hummel:

Thank you for contacting the Bureau of Reclamation in regard to removal of jetty jacks at sites near the bridges at Central Avenue and Bridge Boulevard. After reviewing the sites, our staff has determined that removal of jetty jacks at these locations does not pose significant threat of increased erosion. Consequently, the City of Albuquerque may remove jetty jacks in these areas.

The specific locations where jetty jack removal has been approved are shown on the accompanying aerial photographs. One site is on the east bank of the Rio Grande south of Bridge Boulevard, and the other site is on the east bank of the Rio Grande north of Central Avenue.

Please notify us when the jetty jacks have been removed, and feel free to contact Mark Nemeth at 248-5419.

Sincerely,

Drew C. Baird

for Karl A. Martin
Manager, Technical Services Division

Enclosures

APPENDIX B
CULTURAL RESOURCES AND COORDINATION

CULTURAL RESOURCES

Early archaeological investigations in this area of New Mexico were conducted by Bandelier in the 1880s, and after the 1930s surveys were undertaken byYeo, Mera, Vivian, Hackett and Shelby, among others. Hammond and Rey investigated the historical period (Marshall and Walt 1984:12-14). Additional information can be found in Cordell (1997), Schroeder (1979), Stuart and Gauthier (1984). Marshall and Walt's Rio Abajo survey report (1984) and Tainter and Levine's overview (1987) provide significant compilations on the Rio Abajo-Piro Province regarding the history, the archaeology, and the research and investigations thereof and covers the cultural area immediately south of the project location.

More recent archaeological work in the area has primarily been associated with cultural resources compliance and management requirements for specific projects such as highway construction and maintenance, borrow pits, and for the installation of utility lines. Occasional small research projects include Frisbie's (1967) excavation at the Artificial Leg sites on the West Mesa, Judge and Dawson's surveys for Paleo-Indian sites and Huckell's on-going Paleo-Indian investigations on the west mesa; Ward's and Schmader's various survey and excavation projects on the West Mesa conducted in advance of construction of the endless houses in and around Rio Rancho, including additional unpublished excavation at Artificial Leg by Ward, and the Double Eagle Airport. Kit Sargeant (1986) conducted oral history interviews and excavation in the North Valley, several miles the north of this project.

The publication, *Secrets of a City: Papers on Albuquerque Area Archaeology* (Poore and Montgomery 1987) discusses numerous projects in close proximity to the proposed the jetty jack removal study. A recurring theme of papers in this volume (e.g., Schaafsma, Sargeant, and Vierra) concerns the difficulty of correlating archaeological sites with names and locations recorded by the early Spanish explorers beginning with Coronado in 1540. In addition to vague notations, spelling variants and completely different names, the landscape changed markedly in 400 years. One major change is the Rio Grande itself. In addition to periodic major floods, the river channel has migrated from the west terrace to the east terrace and has only remained in the same location since the construction of the levees starting in 1930 (Berry and Lewis 1997; Sargeant 1987:31-47; Kelley 1974). The river migration has obvious implications for the archaeological record. Numerous oral histories (Sargeant 1986) relate the devastation caused during floods. One particular problem resulted from the use of adobe in housing construction; it literally melted from under the roof (see photographs in Van Citters 2000).

The culture history of this area broadly follows that of the Southwest and has been chronologically generalized into major periods based on noticeable changes in the cultural record. The major periods and their approximate dates include the PaleoIndian 9,500 B.C.- ~5,500 B.C.; the Archaic 5,500 B.C.- ~A.D. 1; the Puebloan ~A.D. 1 - A.D. 1540; and Historic A.D. 1540 to the Present.

These Periods are further subdivided to describe specific regional and local variations in the archaeological record. This general area is located in the transition zone between the Puebloan (Anasazi) peoples to the north and the Mogollon area to the south. Wiseman (1995:9) believes that Marshall and Walt's (1984) broad cultural outline should be applicable to the central Rio Grande Valley slightly to the north of their study area.

PaleoIndian sites in New Mexico are known primarily from the eastern plains and the Rio Grande valley, with a few being known in the western part of the state (Stuart and Gauthier 1984; Simmons *et al*. 1989:33-34). There are also numerous, scattered isolated artifacts reported from across the state. The PaleoIndian studies in the Rio Grande valley, reported by Judge and Dawson (1972) and Judge (1973) indicate that Clovis, Folsom, and Plano sites occur in the Rio Grande valley and consist mostly of surface finds of isolated artifacts; however, occasional stratified sites have been found. The PaleoIndian peoples were primarily mobile big game hunter-gatherers who also scavenged.

The chronology defined by Irwin-Williams (1973) for the Arroyo Cuervo region has been the most widely utilized for the Archaic Period in New Mexico. Huckell (1996) brought together recent documentation for the period in the Southwest. Many Paleo- and Archaic-Period sites are difficult to distinguish and many sites recorded only as lithic scatters undoubtedly date to these periods. Dating sites is usually accomplished with diagnostic projectile points although many newly discovered Southwestern sites are producing dateable materials (Huckell 1996:325-327). Archaic peoples remained very mobile, but, as a result of major climatic changes, they adapted to an essentially modern ecological setting and increased reliance on small game and the collecting and gathering of plant foods in a seasonal migratory pattern. Toward the end of the Archaic Period, many social and technological changes occurred including increased dependence on wild plants and the adoption of Meso-American cultigens and the introduction of the bow and arrow about A.D. 200.

Generally in the Rio Grande Valley, the prehistoric Puebloan Period is characterized by increasing population sizes, movement of people across the landscape, more sedentism and aggregation of peoples into larger villages, an increasing dependence on agriculture, and a more intense and efficient use of the environment. Small pithouse villages, larger aboveground roomblocks, and eventually huge adobe pueblos with scattered field houses are common. There is an increasing use of water control features and local and long distance trade is important.

The earliest Puebloan Phases, or Early Developmental (A.D. 400-800), are characterized by small sites with pithouses, surface jacal storage rooms, and burned pit houses on the west mesa frequently contain large quantities of corn. These sites contain a predominance of Anasazi wares as Lino Gray and small quantities of plain brown ceramics similar to those in the Mogollon. There is a gradual transition into later Developmental (the Rio Grande equivalent of Pueblo I and II elsewhere in the Southwest). The number and size of sites increases

rather slowly; those in the Albuquerque area have been recorded on the gravel terraces and the west mesa in generally close proximity to water, either the Rio Grande or its intermittent tributaries. Pit houses have more standardized floor features; however, no abrupt architectural changes accompany the introduction of Red Mesa Black on white ceramics (Cordell 1979:34-44).

The Coalition Period, nominally between A.D. 1200 and 1325 corresponds to a shift from mineral paint to organic paint on pottery, as typified by Santa Fe Black on white. Numerous other black on white ceramic styles occur, including Kwahe'e, Chupadero, Socorro, Galisteo with a small percentage of St. John's Polychrome. Pit houses still occur but above ground room blocks become more common. Many of these have rectangular kivas incorporated in the room blocks (Cordell 1979:44-45).

During the Classic Period, the population of the area increases rather markedly and many researchers attribute this to migrants from the four corners area of the southwest. People were driven from this location by a series of droughts, declining soil fertility, and other social and environmental factors. The effects of a major drought between A.D. 1276 and 1299 were too much to over come and the populace relocated to essentially permanent water in the Chama and Rio Grande Valleys. This Period dates between A.D. 1325 and 1600 and overlaps the arrival of the Spanish explorers in 1540. Glaze painted pottery, large aggregated pueblos, and mural paintings particularly in kivas are characteristics of the period. Sites occur from the river valley such as Alameda Pueblo through the benches such as Kuaua, into Tijeras Canyon (Tijeras Pueblo) and along the east flanks of the Sandia Mountains – San Antonio and Paa-ko Pueblos (Cordell 1979:45).

In regard to irrigation in the Southwest, from about the 1250s to 1600s, Puebloan peoples were becoming more sedentary and increasingly dependent on domesticated crops that supplemented their hunting and gathering subsistence economy. In these horticultural/ agricultural pursuits, Puebloans developed numerous soil and moisture conservation systems, and some limited irrigation, however expedient, was practiced in New Mexico in the late sixteenth century (Wozniak 1987:15).

A detachment, from Coronado's 1540 exploratory expedition, led by a Captian Franciso de Ovando, and later perhaps Coronado himself, visited several of the Piro Pueblos along the river and continued into the Albuquerque area. Sites with historic components include Kuaua, Paa-ko, and San Antonio. Coronado's force spent the winters of 1540-1541 and 1541-1552 at Kuaua. Missions were subsequently established in the 17th century at Kuaua, and San Felipe de Neri still standing in Albuquerque's Old Town. The establishment of the mission of San Pedro del Cuchillo is recorded at Paa-ko in 1661, and while excavations occurred within the historic portions of the site, no evidence of the mission was discovered (Cordell 1979:45).

Subsequent expeditions traveling along the Rio Grande from the south to the north into New Mexico included that of Father Augustín Rodríguez and Francisco Sánchez Chamuscado who followed indigenous trails in 1581 and that of Antonio de Espejo in 1582 (Tainter and Levine 1987:78-80; Simmons 1979:178). Espejo, visiting several Piro Pueblos over the course of four days, reported that the area had an estimated population of 12,000 souls (Twitchell 1917:337). Espejo also reported on the abundance of crops produced in the Piro province. Traveling up the Pecos River in 1590, Gaspar Castano de Sosa made an unauthorized attempt to establish a colony in New Mexico; however, he was arrested by Captain Juan Morlete in late winter 1591 and was marched down the Rio Grande back to Mexico (Tainter and Levine 1987:82).

In 1598, Oñate and his colonist followers traveled the route along the Rio Grande from Mexico, and established the first Spanish colonial settlement near the immediate vicinity of today's San Juan Pueblo (Simmons 1988:35-38). During his expedition to the north, Oñate visited a pueblo that he called Nueva Sevilla at or near old La Joya (approximately 60 miles south of the project location). Oñate passed through the Albuquerque area and continued to the north before settling near the confluence of the Chama and Rio Grande River valleys at a place he named San Gabriel de Yunque. This was the capital of New Mexico until 1610 when it was relocated to Santa Fe (Cordell 1979:111-112).

Oñate's Rio Grande route, upon gaining some permanence, became known as the *El Camino Real de Tierra Adentro*, the Royal Road, and provided the major link for numerous travelers, traders, and provincial supply caravans between *Nuevo Mexico* and other cities in Mexico (Boyle 1994:1-2). Much later, Americans would also use the route to extend the Santa Fe Trail trade (1820-1880) down the *Camino Real*/Chihuahua Trail into Mexico making the route an international-trade network (Boyle 1994).

By the 1670s practically all of the Piro and Tompiro areas south and southeast of Albuquerque were abandoned, due to regional droughts, Spanish oppression and disease, and intensive nomadic raiding. Prior to the Pueblo Revolt of 1680 a number of Hispanic colonists settled in ranches along the Rio Grande between Kuaua (near resent day Bernalillo) and Isletta. The area was referred to as the Rio Abajo; however, it was not considered to be an administrative unit by the Spanish (Cordell 1979:45-46). By the time of the Pueblo Revolt, many of the remaining Piro people had joined other northern Pueblos or moved south to El Paso with the fleeing Spaniards, possibly fearing retaliation, since the Piro people had always supported the Spaniards. Many of the inhabitants of Isletta Pueblo also went south to El Paso. Several reconquest attempts were made in the 1680s, with the Spaniards generally following the old trail up the Rio Grande (Tainter and Levine 1987:91-93). Upon de Vargas' return to New Mexico, many of the Piro and Isletta remained in the El Paso area (Schroeder 1979:236-239). After de Vargas' reconquest, the Spaniards made an effort to redirect their colonization by issuing community land grants that were

intended to be self-sufficient farming and herding communities (Tainter and Levine 1987:93-95).

In 1706, Don Francisco Cuervo y Valdez, the 28th Spanish colonial governor, sent Juan Ulibarri to the Albuquerque area to determine its suitability for settlement; Ulibarri referred to it by several different names each of which incorporated *bosque grande* or big forest thicket. The Governor accepted Ulibarri's report and authorized the founding of the third villa, or administrative unit, in New Mexico (after Santa Cruz and Santa Fe). The villa's original name was San Francisco de Alburquerque, where the river could be forded by oxcarts and pasturage and timber were adequate. The original settlement, in what is now Old Town, consisted of 12 families who moved from Bernalillo. The Duke of Alburquerque, fearing the displeasure of King Philip V of Spain, who had not authorized the villa, changed the name to San Felipe de Alburquerque thereby honoring the monarch's patron saint. This name did not come into common use until after 1776. In order to protect Albuquerque from raiders, Genizaro communities were established at Carnue, Tome, and Belen (Cordell 1979:45-46; Julian 1996:9-11).

Wanting to provide more protection for travelers on the road between Santa Fe and El Paso, the Comandante General of the Provencias Internas had ordered Governor Nava to extend the southern boundary of the Rio Abajo by reestablishing the settlements at Senecu, Socorro, Alamillo, and Sevilleta; however, at first Governor Nava had trouble attracting volunteers (Wozniak 1987:50, 83; Tainter and Levine 1987:97). By 1805, Sevilleta is reported to having been well established, and by 1817, a sizable population was living at Socorro when they petitioned Governor Allande for legal ownership of the grant (Tainter and Levine 1987:97-98). Those at Sevilleta soon followed suit and were placed in legal possession of their lands in June 1819 (Tainter and Levine 1987:99; Wozniak 1987:52-53). Spanish land grants given in the area in the early part of the 1800s include: the Town of Socorro (1817), Sevilleta (1819), the Pedro Armendariz # 33 and #34 (1819 and 1820, respectively), and the Mexican grant at Bosque de Apache (1845)(GAO 2001; Williams 1986:105-107).

Zebulon Montgomery Pike is among the first Anglo-Americans to pass the project area during March, 1807 (Tainter and Levine 1987:97-98; Marshall and Walt 1984:274-275) and he is the first know Anglo to drop the first "r" from the word "Alburquerque" (Julyan 1996:10). The Texan-Santa Fe expedition also passed through the area in 1841 (Tainter and Levine 1987:102; Marshall and Walt 1984:237-238). Another famous American, James W. Abert who was assigned to General Stephen Watts Kearny's Army of the West, traversed this area in November 1847. Union and Confederate troops also traveled the local roads during the Civil War. By 1880, the Atchison, Topeka and Santa Fe Railroad had laid track down the west side of the Rio Grande as far as San Marcial (Tainter and Levine 1987:126). The coming of the railroad brought many social changes to the small, local communities by providing wage labor jobs, and the competition for those jobs, and thereby took many of the local residents away from their traditional agricultural pursuits (Tainter and Levine 1987:124-136).

Arguments persisted over the correct name and spelling of Albuquerque and it was not resolved until after the railroad arrived on April 22, 1880. Initially there were two Albuquerques and two post office box number, one for Old Town and one for the New Town springing up around the railroad station. In 1886 the postal authorities designated Old and New Albuquerque (without the second "r") (Julyan 1996:11). In spite of inclusion on Route 66 from Chicago to Los Angeles, the population was only 45,000 following the end of World War II. The growth since that time has been rapid.

There was never an individual or a community land grant to the settlement of Albuquerque, either under the laws of Spain or Mexico. Efforts to establish a "Town of Albuquerque Grant" were undertaken in the United States Congress and the Court of Private Land Claims. This Court handed down a decree on May 21, 1892, indicating the Villa de Albuquerque was founded in 1705 and measured four square Spanish leagues from the center of the plaza. The decree was appealed to the United States Supreme Court and reversed on October 17, 1898. In order to cure defect in the titles, on February 18, 1901, the U.S. Congress enacted a law that quitclaimed to the City as a Trustee for the use and benefit of those actually entitled thereto "…the land or any part thereof which was in eighteen hundred and eighty-three surveyed under the direction of the Surveyor General for New Mexico…". Both Santa Fe and Socorro were in a similar situation and obligated to ask Congress for assistance (Pearce 1965:5-6).

RESULTS

The Middle Rio Grande Conservancy District was organized in 1923 deal with severe flooding, waterlogged lands, and failing irrigation facilities (Scurlock 1998:281; Wozniak 1987: 134). By 1928, a reclamation, flood control, and irrigation plan was developed and between 1930 and 1934 major portions of the plan, including flood control levees, riverside drainage canals, and irrigation ditches and diversions, were constructed (Scurlock 1998:281). Starting in 1951 the Corps and the Bureau of Reclamation installed thousands of Kellner jetty-jacks to armor the riverbanks and maintain the floodway. A major channel modification project to maintain channel capacity was completed by the Bureau in 1959 (Scurlock 1998:228, 354). Subsequently to this work, significant sediment deposition occurred within the floodplain between the flood control levees and within the jetty-jack field. Sediment deposition averages between two and five feet.

A file search of the New Mexico Historic Archaeological Records Management Section database was conducted for the two jetty jack locations. A square of one kilometer (Table 1) was superimposed over each location, and no archaeological sites occur within either search area. Given the project's location on the river-side of the levee within the ancestral floodway of the river, it is highly unlikely that archaeological sites occur within the project area. While the existence of sites is not impossible, given the east to west wandering of the river, if any were present, they would be deeply buried and would not be affected by this undertaking. Of the 420 jacks requiring removal, only 60 are actually buried

while the remainder are sitting on the surface. The depth of burial varies from one to four feet; therefore, disturbance to the ground will be minimal, and it is important to remember that all of this soil was deposited after the jetty jacks were installed in 1956 and 1957.

Access is provided by existing roads and the dirt roads on the riverside of the levee used in the mid-1950s for the placement of the jetty-jacks and construction of the groins. As the purpose of this study is the best methodology to remove jacks and not to induce overbank flooding, neither soil nor vegetation will be removed. The non-native vegetation has been removed from the Barelas Bridge (Avenida Cesar Chavez) location by the City of Albuquerque Open Space Division. Access to the jacks in this location will be unimpeded. Non-native vegetation was removed from the Central Avenue Bridge location by Rotary Club volunteers on behalf of Open Space. To the extent possible, all vegetation will be avoided by the equipment. Some of the smaller understory brush may be driven over. This project will have no effect on the cultural resources of the Albuquerque area. In the unlikely event that cultural resources are discovered, work will cease in the vicinity of the discovery and consultation with the State Historic Preservation Office will take place.

Table 1: Location of Archaeological Records Management System defined Search Area.

Central Avenue Bridge: UTM Zone 13; 3883500 to 3884500 N and 346500 to 347500 E
Barelas (Aviendia Cesar Chavez) Bridge: UTM Zone 13; 3881000 to 3882000 N and 348000 to 349000 E

State Historic Preservation Officer Coordination/Concurrence Letter

DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
4101 JEFFERSON PLAZA, NE
ALBUQUERQUE, NEW MEXICO 87109-3435
FAX (505) 342-3199

Reply to Attention of:

June 28, 2002

RECEIVED
JUL - 2 2002
HISTORIC PRESERVATION DIVISION

Engineering and Construction Division
Environmental Resources Branch

Ms. Jan Biella
Acting State Historic Preservation Officer
New Mexico State Historic Preservation Bureau
228 East Palace Avenue, Room 320
Santa Fe, New Mexico 87501

065272

Dear Ms. Biella:

Pursuant to 36 CFR Part 800, and in conjunction with the preparation of an Environmental Assessment, the U.S. Army Corps of Engineers (Corps), Albuquerque District, is providing you with a draft copy of a letter report and seeking your concurrence in our determination of "No Historic Properties Affected" for the proposed project entitled Middle Rio Grande Bosque Jetty Jack Removal Evaluation Study. In anticipation of a number of Kellner Jetty Jack removal projects, some of which will be in conjunction with bosque ecosystem restoration, the Corps is proposing to undertake a study to determine the safest, most efficient method to remove jetty jacks that will cause the least damage to existing native vegetation. The methodology to be utilized in future projects will be based on the results of this study. The methods to be evaluated include both manual and mechanical techniques. Two separate locations adjacent to the Rio Grande in Albuquerque are involved, both on the river side of the east-bank levee. It is highly unlikely that archaeological resources are present and very little ground disturbance will occur. The disturbance that occurs will be to soil deposited since the jacks were installed in 1956 and 1957.

Both locations are on the east side of the Rio Grande in Albuquerque, one of approximately 1.8 acres is immediately north of the Central Avenue Bridge and the second, approximately 4.3 acres, is immediately south of the Barelas (now Avenida Cesar Chavez) Bridge. The exact locations and copy of a U.S. Geological Survey quadrangle map are included in the letter report. Of the 420 jetty jacks to be removed, only 60 are buried, with the depth varying from one to four feet. The soil was deposited after the jacks were put in place; the remainder of the jacks are sitting on the ground. Access to the

locations is provided by existing roads, and the areas were previously disturbed during the jack's construction and placement.

A search of the New Mexico Historic Preservation Division's Archaeological Records Management Section database was conducted, and no archaeological sites are reported either within the project locations or within a one square kilometer area around the locations. The Corps did not conduct an on-the-ground survey of the project locations as it is highly unlikely that archaeological resources are present. Based on the information in the letter report, the hydro-geomorphology, and the nature of the undertaking, the Corps is of the opinion that there will be "No Historic Properties Affected" by the proposed jetty jack removal study project. Should previously unknown artifacts or cultural resource manifestations be encountered during proposed study, the work will cease in the immediate vicinity of the resource, a determination of significance made, and a mitigation plan formulated in consultation with your office pursuant to 36 CFR 800.11.

If you have questions or require additional information, please contact Dr. John D. Schelberg at (505) 342-3359. Thank you for your attention to this matter.

Sincerely,

Julie A. Hall
Acting Chief, Environmental Resources Branch

DATE 7/8/02

I Concur for Jan Biella
Acting New Mexico State Historic Preservation Officer

Enclosure

APPENDIX C
US FISH AND WILDLIFE SERVICE COORDINATION

Dr. Joy Nicholopoulos, Field Supervisor
U.S. Fish and Wildlife Service
New Mexico Ecological Services Field Office
Albuquerque, NM 87113

Dear Dr. Nicholopoulos,

Enclosed is a Draft Environmental Assessment (DEA) for the Middle Rio Grande Jetty Jack Removal Evaluation Study for your review and comment in accordance with the National Environmental Policy Act (NEPA).

The proposed jetty jack removal study is a preliminary evaluation of various methods (manual, heavy equipment, etc.) for jetty jack removal with regard to position, surroundings, and degree of sedimentary entrainment while attempting to preserve the existing native vegetation to the greatest extent possible. This evaluation study is needed, as methods for jetty jack removal remain unevaluated in terms of efficiency, cost effectiveness, safety, and disposal.

In addition to the knowledge and experience gained in jetty jack removal, this study would provide a significant contribution to the Middle Rio Grande Conservancy District's (MRGCD) and the City of Albuquerque Open Space Division's (OSD) ongoing bosque restoration/revitalization efforts. The MRGCD and Albuquerque OSD are the non-Federal sponsor and cooperating agency respectively. The implementation of this study would occur toward the end of June 2002.

There are two discrete locations for this evaluation study. The purposes for including two areas in this study are to: 1) allow for an adequate number of jetty jacks to be removed such that the widest possible variety of methods can be explored and evaluated, 2) incorporate a variety specific conditions that future removal efforts would encounter, and 3) become proficient in the aspects of jetty jack removal (*i.e.* methods, efficiency, safety, disposal, etc.).

Site number one, located immediately north of the Central Ave. Bridge on the east side of the Rio Grande, contains approximately 120 jetty jacks that would be removed. These jetty jacks are no longer required for flood control purposes and the US Bureau of Reclamation, Albuquerque Area

Office, has granted permission to remove the jetty jacks in this area. The Albuquerque OSD, through many hours of staff and volunteer work, has cleared the site of non-native exotic vegetation. As a result, jetty jack removal would be simplified. The remaining native vegetation would be preserved and protected to the greatest extent possible as methods in the preservation and protection of native plant species during jetty jack removal is one of the primary goals of the proposed study. In addition, a variety of native vegetation would be planted to improve the ecological and aesthetic value of the area in lieu of the impacts generated from the removal activities.

Site number two, located immediately south of the Avenida César Chávez Blvd. Bridge on the east side of the Rio Grande, contains approximately 300 jetty jacks that would be removed and the US Bureau of Reclamation, Albuquerque Area Office, has also granted permission to remove the jetty jacks in this area. The Albuquerque OSD has also cleared this site of exotic and burned vegetation and thus would provide an additional opportunity to evaluate methods for jetty jack removal as outlined previously. This site would be revegetated for the same reasons and in the same manner as site number one.

The National Hispanic Cultural Center of New Mexico (NHCCNM), in cooperation with the MRGCD and the Albuquerque OSD, is anticipating to utilize site number two in the future as an adjunct to their facility's attractions and as an "out-door classroom" for visiting schoolchildren. The NHCCNM is located directly across the riverside drain, due east of site number two. In addition, the Bosque Ecological Monitoring Program (BEMP), under the direction of Dr. Clifford S. Crawford, Professor Emeritus, Department of Biology, University of New Mexico, has been monitoring the site for a number of years as part of a comprehensive educational program. BEMP provides local students of all ages the opportunity to participate in a genuine scientific endeavor that fosters practical educational experiences in ecology and biology. BEMP is also an important part of the long-term efforts in monitoring and understanding the ecological complexities of the Rio Grande bosque.

Ultimately, this evaluation study would: 1) provide crucial knowledge and experience in the methods of jetty jack removal required for future restoration projects, 2) establish a framework of cooperative Federal, State, and Municipal agencies that would foster a beneficial and successful relationship regarding future restoration

efforts, 3) enhance the educational experience for local youth and youth-groups; and 4) greatly assist both sponsor and cooperating agencies in continuing their site specific restoration projects.

The impacts detailed within this Environmental Assessment upon the physical and biological resources resulting from this study would be negligible and, based on the findings of this Environmental Assessment, the proposed study would not have any significant adverse impacts on the quality or integrity of the human or natural environments.

Included in this DEA is our biological evaluation and final determination of effects on listed species in accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended. We have been informally consulting with your office for the past several weeks on this proposed study and, for reasons discussed in the DEA, we have determined that the proposed study would have no affect on the Rio Grande silvery minnow, the southwestern willow flycatcher, the bald eagle, the experimental nonessential population of the whooping crane, and the interior least tern. We request that you expedite this consultation and provide any comments you may have on these determinations in accordance with 50 CFR Part 402.13, Interagency Cooperation–ESA, by June 20, 2002 to:

Mr. Mark Horner, Biologist
US Army Corps of Engineers, Albuquerque District
Environmental Resources Branch
CESPA-EC-R
4101 Jefferson Plaza NE
Albuquerque, New Mexico 87109-3435

If you have any questions regarding the proposed study, please contact Mr. Horner with the US Army Corps of Engineers, Albuquerque District at 342-3187. Thank you for your consideration and assistance on this matter.

Julie A. Hall
Acting Chief Environmental Resources Branch

Enclosure

APPENDIX D
CLEAN WATER ACT COORDINATION

CESPA-OD-R (1145b) 18 Jun 2002

MEMORANDUM FOR Environmental Resources Branch, (EC-R/M. Horner)

SUBJECT: Permit Determination for the Proposed Middle Rio Grande Jetty Jack Removal Study (Action No. 2002 00381)

1. This replies to your 11 Jun 2002 memorandum and draft environmental assessment regarding the proposed jetty jack removal study adjacent to the Rio Grande in Albuquerque, Bernalillo County, New Mexico. We have assigned Action No. 2002 00381 to this activity.

2. We have evaluated the information you provided and studied the project description, other records, and documents available to us. Mr. William Oberle visited the site on 13 Jun 2002. We concur with your findings that no waters of the United States are located within the two proposed project sites. Both sites are located in upland areas above the ordinary high water mark of the Rio Grande. There are no Corps of Engineers' jurisdictional waters on the two proposed project sites. Therefore, the project is not regulated under the provisions of Section 404 of the Clean Water Act and a Department of the Army permit will not be required.

3. Our disclaimer of jurisdiction is only for Section 404 of the Federal Clean Water Act. Other Federal, state and local laws may apply to the activities. Therefore, you should also contact other Federal, state and local regulatory authorities to determine whether the activities may require other authorizations or permits.

4. This jurisdictional determination will be valid for 5 years from the date of this letter unless new information warrants revision of the determination within that time.

5. If you have any questions, please feel free to contact me at (505) 342-3284 or e-mail me at william.m.oberle@usace.army.mil.

William M. Oberle

William M. Oberle
Regulatory Specialist

APPENDIX E
COMMENTS-DRAFT ENVIRONMENTAL ASSESSMENT

CONVERSATION RECORD

TIME: 1000 hrs. DATE: 6-20-02

TYPE: ☐ VISIT ☐ CONFERENCE ☒ TELEPHONE ☒ INCOMING ☐ OUTGOING

ROUTING: NAME/SYMBOL | INT

Location of Visit/Conference:

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU	ORGANIZATION (Office, dept., bureau, etc.)	TELEPHONE NO.
Dr. Clifford S. Crawford	University of NM	(505) 277-6110

SUBJECT: Draft Environmental Assessment (EA) for Middle Rio Grande Jetty Jack Removal Study

SUMMARY

Dr. Crawford Phoned to comment on the above draft EA. His only comment was a correction on the BEMP Monitoring at Site #2. In the draft EA, it was stated that BEMP has been monitoring the site for a number of years. This statement is in error. Dr Crawford informed me that Monitoring at this has only recently begun.

ACTION REQUIRED

Statement on Pages (6, 18, FONSI) will be corrected

NAME OF PERSON DOCUMENTING CONVERSATION	SIGNATURE	DATE
MARK W. HORNER		6-20-02

ACTION TAKEN

As above

SIGNATURE	TITLE	DATE
	Biologist	6-20-02

50271-101 CONVERSATION RECORD OPTIONAL FORM 271 (12-76) DEPARTMENT OF DEFENSE

APPENDIX F
DRAFT ENVIRONMENTAL ASSESSMENT PUBLIC AVAILIBILITY

Albuquerque Journal, Legal Section on June 11, 2002

Public Notice

The Draft Environmental Assessment entitled: ***Draft Environmental Assessment and Finding of No Significant Impact (FONSI) for Middle Rio Grande Bosque Jetty Jack Removal Evaluation Study*** is available for review by contacting:

MR. MARK HORNER, BIOLOGIST
U.S. ARMY CORPS OF ENGINEERS
Albuquerque District
Environmental Resources Branch
CESPA-EC-R
4101 Jefferson Plaza NE
Albuquerque, New Mexico 87109-3435
(505) 342-3187
E-mail: mark.w.horner@spa02.usace.army.mil

The review and comment period will begin on June 11, 2002 and conclude on June 21, 2002.

In addition, an electronic version, in .pdf format, is available at the U.S. Army Corps of Engineers, Albuquerque District homepage, http//www.spa.usace.army.mil/, under the "Environmental Assessments & FONSI" link. Please submit any and all comments to Mr. Mark Horner at the above address postmarked no later than June 21, 2002.

STATE OF NEW MEXICO
County of Bernalillo SS

Bill Tafoya, being duly sworn, declares and says that he is Classified Advertising Manager of **The Albuquerque Journal**, and that this newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Session Laws of 1937, and that payment therefore has been made of assessed as court cost; that the notice, copy of which is hereto attached, was published in said paper in the regular daily edition, for 1 times, the first publication being on the 11th day of June, 2002, and the subsequent consecutive publications on _____, 2002.

Sworn and subscribed to before me, a Notary Public, in and for the County of Bernalillo and State of New Mexico this 11th day of June of 2002.

PRICE 12.69

Statement to come at end of month.

ACCOUNT NUMBER C88913

CLA-22-A (R-1/93)

OFFICIAL SEAL
Samantha Weiss
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: 10/2/04

Samantha Weiss

Public Notice

The Draft Environmental Assessment entitled: ***Draft Environmental Assessment and Finding of No Significant Impact (FONSI) for Middle Rio Grande Bosque Jetty Jack Removal Evaluation Study*** is available for review by contacting:

Mr. Mark Horner, Biologist
U.S. Army Corps of Engineers
Albuquerque District
Environmental Resources Branch
CESPA-EC-R
4101 Jefferson Plaza NE
Albuquerque, New Mexico
87109-3435
(505) 342-3187
E-mail: mark.w.horner@spa02.usace.army.mil

The review and comment period will begin on June 11, 2002 and conclude on June 21, 2002.

In addition, an electronic version, in .pdf format, is available at the U.S. Army Corps of Engineers, Albuquerque District homepage, http//www.spa.usace.army.mil/, under the "Environmental Assessments & FONSI" link. Please submit any and all comments to Mr. Mark Horner at the above address postmarked no later than June 21, 2002.
Journal: June 11, 2002